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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,343	08/27/2003	Leonhard Kistler	774,050	4160

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John S. Egbert
Harrison & Egbert
7th Floor
412 Main Street
Houston, TX 77002

EXAMINER

KOCH, GEORGE R

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,343

Applicant(s)

KISTLER ET AL.

Examiner

George R. Koch III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 46 been renumbered 45. Furthermore, for the purposes of examination, it is assumed to be dependent on claim 44.

2. Renumbered claim 45 objected to because of the following informalities: It is dependent on itself. Appropriate correction is required. For the purposes of examination, it is assumed to be dependent on claim 44.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 33, 34, 38 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falck (US Patent 6,423,366 B2) in view of Price (US 4,922,852).

Falck discloses a device for applying a coating medium comprising, a substrate (item 12), at least one spray valve (item 78) having a nozzle that opens to an outlet area (the felt - item 81), the spray valve having a supply section that is arranged in front of the nozzle opening (see Figure 8 - supply line is 76, valves are 78, coater unit 26), a

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closing means (internally of coating unit 26 and valve 78, and see column 6, lines 51-54, which discloses "proportional valves") cooperative with the nozzle opening for adjusting a size of the outlet area (as indicated by the valves being proportional). The proportional valve includes a positioning means (the proportional portion) for positioning said closing means (the valve closure itself). Furthermore, the substrate is movable with respect to the spray valve (as disclosed by having the strip being high speed - see column 3, lines 11-20). Falck discloses a supplying means (see Figures 7 and 8) connected by a supply line (item 76) to the spray valve for supplying the spray valve with the coating medium under pressure (via pressure transducer 88). Falck discloses that the closing means are continuously adjustable by said positioning means within a desired adjustment field (via the valves being proportional - see column 6, lines 51-54). Falck also discloses a regulator means (controller 16 and associated subelements - see Figures 1, 2, and 3) assigned to said positioning means, said regulator means (controller 16) capable of having at least one target value input for setting an instantaneously required outflow rate of the coating medium from the spray valve (see columns 4 and 5 which disclose various values and rates, such as the predetermined range in column 4, line 55), said regulator means (item 16 and related subelements) capable of setting at least one input value for the mass flow rate of the coating medium through said supply section, said regulator means for creating an adjustment signal (see column 6, lines 42-54, which discloses the control of the optional proportional valves) which moves said positioning means, and therefore said regulator means control the positioning means, which is capable of being relative to a deviation between the target

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value input and the input value for the mass flow rate. Falck discloses that the target value input can be adjustable by said regulator means relative to a desired coating thickness profile over a length of said substrate movable with respect to the spray valve (see column 6, line 55 to column 7, line 25 and column 8, line 51 to column 8, line 2, especially the references to controlling coating weight, which is the controlling of coating thickness).

Falck does not disclose the spray valve having a spraying head, said nozzle opening formed on a conical nozzle, said conical nozzle emerging from a storage chamber connected to said supply line, said closing means being a needle valve cooperative with said nozzle opening, said positioning means for axially moving said needle valve in said nozzle opening, nor does Falck disclose that said positioning means are a linear motor with a current supply, and the regulator means regulating the current supply to said linear motor.

Price discloses a spray valve with a conical opening and a valve needle (32-33) moved axially by a drive device. Price discloses that such a needle valve system results in instantaneous rate of flow (see column 6, lines 35-63) to the coating head. Price further discloses that the structures include a linear motor in the form of a magnet arrangement having a coil that can be impinged with current (see column 5, lines 10-47), and controlled by regulator or control means. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such structures in order to provide instantaneous rate of flow to the coating head.

As to claim 34, Falck discloses that the position of the substrate is detected via a path measurement means (item 30), the means having output that is at the input of a target value control element (item 16) constructed as a computer in which the desired coating thickness is saved and which forms the target value for the outflow rate from this instantaneous value of the position of the substrate and the coating thickness allocated to this position.

As to claim 38, Falck discloses a pressure line (see column 8, lines 3-17) which can impinge the spray valve with air which allows for spraying of the coating medium. Falck discloses a number of valves in between (see Figures 2 and 2a).

Furthermore, as to claim 41, Price as incorporated discloses that the linear motor (linear actuator 20) includes a lifting magnet (armature 50) having a coil (item 46), the coil having a current supply connected thereto (see column 5, lines 10-47, especially lines 32-35 which discuss the energization of the coils in the opposite direction), the current being controlled by an electrical connector (item 43) which, when combined with Falck above, would be connected to the regulator of Falck.

As to claim 42, Falck discloses that the regulation is a programmable logic controller (column 3, lines 29-37), i.e., a programmable microprocessor.

As to claim 43, the apparatus and controller of Falck is capable of being used such that they record or display the deviations and their components in the form of actual outflow rates and associated target values.

As to claim 44, controller 16 is an integrated regulation device. Furthermore, Falck discloses a plurality of spray valves (Figure 8, item 78), each controlled by a

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regulator (item 16 - each section of the controller for the individual controlled valve is a regulator), and that the regulator of all spray valves are connected to a common target value control element (items 16 and 96), in which the coating thickness values of the zones and the temperatures, and which forms the target values for all spray valves.

However, Falck merely discloses "controllers" and does not go further and specify the type of controllers, such as a computer with a memory register. However, official notice is taken that computers with memory registers, i.e. data memory, are well known and conventional control devices widely used in virtually every industry. One in the art would immediately appreciate that a computer would provide programmable control functioning, and would be an affordable and easily available solution. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a computer with conventional memory in order to provide an affordable and available solution to controlling the apparatus.

Furthermore, as to claim 45, Falck discloses a number of data buses, i.e., wiring, for providing data to the regulators and the associated spray valves (see items 92, 90, 79, etc, in Figure 2a).

5. Claims 33, 41, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Estelle (US patent 6,517,891 B1) in view of Price (US 4,922,852).

As to claim 33, Estelle '891 discloses a device for applying a coating medium comprising; a substrate (item 28), at least one spray valve (item 50) having a nozzle opening (item 24) with an outlet area and a supply section (items 54) in front of the

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nozzle opening (items 24), a closing means (the closing mechanism in valve 50) that can adjust the size of the outlet area (via opening and closing), a positioning means (solenoid 48) for positioning the closing means, whereby the substrate can be moved past the spray valve (via item 30), a supplying means (the connection to pump 52 and reservoir 54) connected by a supply line to the spray valve for supplying the spray valve with the coating medium under pressure (via pump 52), the closing means being continuously adjusted (between open and closed) within a desired adjustment field. Falck also discloses a regulator means (item 46 and 38) assigned to the positioning means, the regulator means capable of having at least one target value input (see Figure 2b, steps 234 and 238) for the instantaneously required outflow rate of the coating medium from the spray valve, and the regulator means capable of setting at least one actual value input for the mass flow rate (signal from pressure transducer 62) through a supply section, the regulator means capable of forming an adjustment signal that moves the positioning device in the direction to offset the deviation (see, for example, column 6, lines 32 to column 7, line 11). Furthermore, Estelle '891 is capable of adjusting the target value depending on a desired coating thickness profile over the length of the substrate running in the thickness direction with respect to the valve (see column 1, lines 36-48, which discloses that pressure affects thickness. Thus, Estelle '891 can adjust thickness).

Estelle '891 shows the outside of a conical nozzle (see Figure 1), with the regulator means controlling the positioning means, but otherwise does not disclose the

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structure of the spray nozzle. One in the art would immediately appreciate that any solenoid/magnetic based spray valve could be used.

Price discloses a spray valve with a conical opening, emerging from a storage chamber connected to the supply line (see fluid inlet 28), and that the closing means are a valve needle (32-33) cooperative with the nozzle opening (see item 34) and the positioning means are for axially moving the needle valve in the nozzle opening. Price further discloses that the structures include a linear motor in the form of a magnet arrangement having a coil that can be impinged with current (see column 5, lines 10-47). Price discloses that such a needle valve system results in instantaneous rate of flow (see column 6, lines 35-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such structures in order to provide instantaneous rate of flow.

Furthermore, as to claim 41, Price as incorporated discloses that the linear motor (linear actuator 20) includes a lifting magnet (armature 50) having a coil (item 46), the coil having a current supply connected thereto (see column 5, lines 10-47, especially lines 32-35 which discuss the energization of the coils in the opposite direction), the current being controlled by an electrical connector (item 43) which, when combined with Estelle above, would be connected to the regulator of Estelle.

As to claim 43, the apparatus and controller of Estelle '891 is capable of being used such that they record or display the deviations and their components in the form of actual outflow rates and associated target values.

6. Claims 34, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Estelle '891 as applied to claims 33 above, and further in view of Estelle '325 (US Publication 2002/0079325 A1).

Estelle '891 discloses all of the limitations of claim 33, but does not suggest detecting, via a path measurement device, a position of the substrate within its path passing the spray nozzle.

As to claim 34, Estelle '325 discloses detecting, via a path measurement device (trigger sensor 41 and conveyor motion sensor 34), the position of a substrate within its path passing the spray nozzle. The controls of Estelle '891 and Estelle '325 are both capable of then having a target control element constructed as a computer in which the desired coating thickness, and preferably in the form of a coating thickness profile, is saved and which forms the target value for the outflow rate from this instantaneous value of the position of the substrate and the coating thickness allocated to this position. Estelle '325 discloses that this trigger sensor enables synchronization of the motion of the substrate (see paragraph 0023), in response to which the gun controller can accurately coat the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such a path measurement sensor such as trigger sensor 41 in order to enable synchronization in order to ensure accurate coating.

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As to claim 35, Estelle '325 as incorporated further discloses that the path measurement devices (items 41 and 34) are assigned to the conveyor device (item 30) that transports the substrate by the spray valve.

As to claim 36, Estelle '325 as incorporated further discloses that a beginning of the path measurement can be activated by the substrate and that the devices of the spray valve can be turned on or off (for example, as described in paragraph 0023 and the specification in general) by the target value control element in advance of the opening of the nozzle opening.

7. Claims 37 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falck and Price as applied to claim 33 above, and further in view of Bleck (US 6,436,556).

As to claim 37, Falck discloses controlling the temperature (i.e., the target value input) in order to ensure proper coating of the sheet metal, and also discloses, but does not disclose monitoring the temperature, (i.e., the actual value input).

Bleck discloses a sensor for monitoring the temperature of the coating liquid (item 91), and discloses that one would do so in order to ensure proper coating (see column 2, lines 38-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a temperature sensor for creating an actual value input in order to ensure proper coating temperature

Furthermore, as to claims 39-40, Falck discloses monitoring and controlling mass flow. Bleck discloses controlling and monitoring temperature. Official notice is taken

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that it would have been well known and conventional to have the mass flow rate element be a venturi type diaphragm with a regulator attached. Such detectors provide accurate mass flow rate measurements. Furthermore, combined sensors as in claim 40 reduce the wiring complexity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used a well known and conventional mass flow rate measurement element with a venturi type diaphragm and pressure regulator with an integrated temperature sensor in order to reduce instrumentation complexity.

Response to Arguments

8. Applicant's arguments filed 3/7/2005 have been fully considered but they are not persuasive.

9. With regard to the spray valve of Falck being connected to the felt dispenser, the claims of the instant application do not exclude the presence of the felt applicator.

10. In response to applicant's argument that Estelle attempts to avoid variations in the fluid pressure (pages 7-8), which lead to variations in coating thickness, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937,

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939, 136 USPQ 458, 459 (CCPA 1963). It is unclear why Estelle '891 would not be capable of achieving claimed desired thickness profile, which is not recited as varying in claim 33, and is an intended use as set forth above.

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., i.e., that the thickness profile varies as alleged in page 8, that the current invention claims direct electromagnetic actuation of the needle valve as page 9) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. It is noted that applicant (page 8, line 3 of the response filed 3/7/2005) indicates that the Estelle '891 patent was published after the priority date of the present application. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15. In addition, it should be noted that the Estelle '891 patent was applied under 35 USC § 103 and has a filing date of October 31, 2000, which precedes the foreign priority date.

13. The additional elements of the Price needle valve (as recited on page 9) do not prevent the Price valve from being applied as above.

Conclusion

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14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III
Patent Examiner
Art Unit 1734

GRK
5/19/2005